

Polish Chitin Society

**PROGRESS ON CHEMISTRY
AND APPLICATION OF CHITIN
AND ITS DERIVATIVES
(PCACD)**

Volume XXVIII

Łódź, Poland 2023

Editor-in-Chief: Magdalena Gierszewska

Faculty of Chemistry,
Nicolaus Copernicus University in Toruń,
ul. Gagarina 7, 87-100 Toruń, Poland
e-mail: mgd@umk.pl

International Editors:

C. M. Caramella, University of Pavia, Italy
H. Ehrlich, TU Bergakademie Freiberg, Germany
S. Hudson, North Carolina State University, USA
S. Ifuku, Tottori University, Japan
H. Pospieszny, Institute of Plant Protection, Poland
S. Rossi, University of Pavia, Italy
S. Senel, Faculty of Pharmacy, Hacettepe University, Turkey
V. Varlamov, Russian Academy of Science, Russia



We would like to inform that the development, publication and dissemination of the XXVII volume (2022) and XXVIII volume (2023), and the development of the XXIX volume (2024) of the journal "Progress on Chemistry and Application of Chitin and its Derivatives" (PCACD) is funded from the state budget under contract RCN/SN/0122/2021/1 from the resources of the Minister of Education and Science in the frame of the program „The development of scientific journals”

Co-financing: 50 000 zł Total value: 50 000 zł

ISSN 1896-5644

All rights reserved

© Copyright by the Polish Chitin Society



Printed by: Media-Press, Lodz, Poland

CONTENT

Acknowledgments to the outgoing Editor-in-Chief of PCACD Journal Małgorzata Jaworska	5
A short note: 80 th anniversary of the Sayyora Sharafovna Rashidova	6
<i>Review</i> Samuel M. Hudson	7
The outlook for chitosan in textiles: a review of the literature since the start of the 2020's	
Urszula Filipkowska, Tomasz Józwiak	14
Reusability of chitosan and sawdust-modified chitosan for adsorption/desorption of anionic and cationic dyes	
Bożena Grimling	26
The effect of chitosan on the physicochemical properties of dermatological preparations containing <i>Humulus lupulus</i> L. extract based on celugel	
Ivan Korabel, Semen Khomyak, Lidiia Panchak, Volodymyr Antonyuk	34
Study of the quantitative and qualitative changes in chitin at different stages of ripening of mushroom fruiting bodies	
Marcelina Krupa-Malkiewicz, Ireneusz Ochmian	46
Chitosan and <i>meta</i> -topolin supplementation of the multiplication media of <i>Vitis vinifera</i> L.	
Patrycja Kurowska, Tomasz Józwiak, Urszula Filipkowska, Tadeusz Bakula	56
The use of chitin in the moults and exoskeletons of mealworms (<i>Tenebrio molitor</i>) to remove cationic dyes from aqueous solutions	
Bożena Łosiewicz, Patrycja Osak, Julian Kubisztal	75
The effect of a composite chitosan-silver(I) ion coating on the corrosion resistance of the cobalt-chromium-molybdenum alloy in saline solution	
Bożena Łosiewicz, Patrycja Osak, Julian Kubisztal	89
The effect of a composite chitosan/copper(II) ion coating on the corrosion resistance of grade 4 titanium in saline: preliminary results	

Katarzyna Małolepsza-Jarmołowska Chitosan gels to prevent reflux disease	103
Katarzyna Małolepsza-Jarmołowska Increasing the effectiveness of chitosan gels to protect the oesophageal mucosa	111
Ireneusz Ochmian, Marcelina Krupa-Malkiewicz The effects of applying chitosan of different molecular weights on the growth and quality of Kamchatka berries (<i>Lonicera caerulea</i> L.): Part 1	119
Ireneusz Ochmian, Marcelina Krupa-Malkiewicz The effects of applying chitosan of different molecular weights on the growth and quality of Kamchatka berries (<i>Lonicera caerulea</i> L.): Part 2	128
Maciej Przybyłek, Piotr Beldowski Molecular dynamics simulations of the affinity of chitin and chitosan for collagen: the effect of pH and the presence of sodium and calcium cations	136
Piotr Salachna Mitigation effects of water-soluble chitosan on boron toxicity in pepper plants	151
Anatoly Sklyar, Oksana Kalinkevich, Aleksei Kalinkevich, Vadym Chivanov Preparation and physicochemical characteristics of an iodine and bismuth containing composite material based on chitosan	160
Witold Sujka, Grzegorz Rogacki, Zofia Modrzejewska, Roman Zarzycki Adsorption of silver ions on chitosan hydrogel beads	166
Noira Rakhimovna Vokhidova, Shuhrat Shamsiddinovich Khudoyberdiyev, Ilnar Nakipovich Nurgaliev, Sayyora Sharafovna Rashidova On obtaining binary polyelectrolyte complexes of chitosan <i>Bombyx mori</i> with collagen	188